

**BY ORDER OF THE COMMANDER
ARNOLD ENGINEERING
DEVELOPMENT COMPLEX**



**ARNOLD ENGINEERING DEVELOPMENT
COMPLEX (AEDC) INSTRUCTION 63-101**

24 JANUARY 2017

Acquisitions

**ORGANIZATIONAL
SYSTEMS ENGINEERING**

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This Arnold Engineering Development Complex Instruction (AEDCI) implements Air Force Test Center Instruction (AFTCI) 63-100, Air Force Materiel Command Instruction (AFMCI) 63-1201, Implementing Operational Safety, Suitability and Effectiveness (OSS&E) and Life Cycle Systems Engineering (LCSE). This AEDCI outlines policy and provides guidance for the AEDC Systems Engineering (SE) process. This Instruction is applicable to all AEDC organizations executing programs/projects intended to develop and field test and evaluation (T&E) capabilities for the purpose of supporting U.S. Air Force and other Department of Defense (DoD) T&E requirements. T&E capabilities include the tools, equipment, and facilities that are directly and primarily used to support test operations; it does not include general purpose facilities and infrastructure. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, Recommendation for Change of Publication; route AF Forms 847 from the field through the appropriate functional chain of command. Requests for waivers must be submitted through chain of command to the OPR listed above for consideration and approval. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with (IAW) Air Force Manual (AFMAN) 33-363, Management of Records, and disposed of IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS). This instruction does not require tiers at or below the Wing level.

SUMMARY OF CHANGES

Changes include combining of AEDCI 63-100 and AEDCI 63-3733 into one document. In addition updated document to align with AFTC System Engineering instruction AFTCI 63-100.

1. Purpose The purpose of this AEDCI is to establish standard AEDC T&E Enterprise Systems Engineering (SE) processes for organizations executing programs/projects intended to develop and field test and evaluation (T&E) capabilities. This AEDCI outlines the SE technical management oversight required to ensure that the T&E capabilities developed and delivered satisfy customer and user requirements. Tailoring of formal SE processes and activities is based on an assessment of applicable complexity factors and technical risk (See Attachment 2 and Attachment 3). The Defense Acquisition Guidebook (DAG) can be used in tailoring of formal SE process and activities. The program and technical risk factor tables at attachment 2 and 3 are provided as guidance. All “shall” statements in this Instruction are mandatory unless waived by the AEDC Technical Authority (TA). All requests for waivers to this AEDCI should be submitted to the OPR, AEDC/EN.

2. Roles and Responsibilities

2.1. AEDC/CC shall:

2.1.1. Appoint, by name, at least one Decision Authority (DA) for AEDC. AEDC/CC may, at his/her discretion, appoint multiple DAs either by organization or by specific project.

2.1.2. Appoint, by name, a Technical Authority (TA).

2.1.3. Advocate for resources necessary to conduct and sustain effective and efficient SE processes, tools, and procedures.

2.2. Decision Authority (DA) shall:

2.2.1. Provide AEDC acquisition strategic direction, objectives and expectations.

2.2.2. Serve as the approval authority for major modifications and improvements. Milestone Decision Authority (MDA) can be delegated by an organizational DA with an appointment letter. Delegation will not be lower than Lt Col, NH-4, GS-14 level, and cannot be further delegated.

2.2.3. Approve Program/Project Management Plan (PMP) or equivalent documents.

2.3. Technical Authority (TA) shall:

2.3.1. Establish a Systems Engineering Council (SEC) to administer implementation of organizational SE processes; approve SE process tailoring criteria.

2.3.2. Ensure organizational SE process documents (instructions and procedures) are reviewed bi-annually and updated as required.

2.3.3. Keep the Wing/Complex workforce current with respect to evolving SE policies and guidance.

2.3.4. Serve as the final review authority on SE decision packages submitted to Higher Headquarters.

2.3.5. Ensure all projects/programs amounting to or exceeding \$500,000 in total development costs are properly documented in a PMP or equivalent document. The PMP, or equivalent document, shall be reviewed at least annually by the TA, or whenever a change to the project/program execution baseline is necessary.

2.3.6. Conduct periodic reviews of project/programs at least annually, or whenever a change to the project/program baseline is necessary.

2.3.7. Ensure that a self-assessment of the organizational SE processes are conducted at least annually using the AF Systems Engineering Assessment Model (AF SEAM) as a guide.

2.3.8. Establish tailoring criteria to be applied in administering the organizational SE Instruction.

2.3.9. Ensure that Critical Program Information (CPI) is identified and protected IAW AF and local CPI policy and procedures.

2.3.10. Approve SE waivers.

2.3.11. Approve AEDC Engineering Standards.

2.3.12. Chair the AEDC Systems Engineering Council (SEC)

2.3.13. Appoint the SEC Secretariat.

2.3.14. Formally report System Engineering Council (SEC) activities to AEDC Council every six-months.

2.4. AEDC Systems Engineering Council (SEC) shall:

2.4.1. Facilitate SE implementation across AEDC enterprise.

2.4.2. Establish AEDC T&E Enterprise SE governing body of representatives. At a minimum, SEC membership shall include a senior technical representative from the Test Operations Division (TST), Test Systems Sustainment Division (TSS), Test Support Division (TSD), 704th Test Group and Operating Contractor organization (if part of contract requirement). The governing body of representatives will serve as the liaison to their organization on SE issues.

2.4.3. Serve as the forum for collection and discussion of T&E SE processes.

2.4.4. Meet on a quarterly basis as a minimum.

2.5. AEDC SEC Secretariat shall: Be the focal point for SEC meeting requests, schedule and coordinate SEC meetings, provide the agenda to all SEC members in advance of each SEC meeting, collect and track the action items resulting from each SEC meeting, and collect and distribute the meeting minutes from each SEC meeting.

2.6. Division/Group Leadership shall:

2.6.1. Be accountable for implementation of this AEDCI.

2.6.2. Appoint organizational representative liaison to SEC.

2.6.3. Ensure subordinate organizations follow requirements outlined in this AEDCI and functional organizational tailoring criteria policy.

3. Requirements Management:

3.1. AEDC SE Framework. The AEDC systems engineering approach is based on the Defense Acquisition Guidebook (DAG). AEDC employs the eight technical management processes listed below, which can be tailored depending on the cost, risk, and complexity of the project/program. These processes provide a framework for managing technical activities and identifying the technical information and events critical to the success of the program.

3.2. Configuration Management. A good configuration management process ensures that designs are traceable to requirements, that change is controlled and documented, that interfaces are defined and understood, and that there is consistency between the product and its supporting documentation.

3.3. Decision Analysis. The decision analysis process involves a comprehensive and thorough assessment of the project/program in terms of development (to include technological risks), operation and sustainment, disposal, and cost. The process should also take into consideration personnel training or special skills required. The process should identify metrics which can be used to assess the capability health and status and aid in the decision making process concerning investment planning.

3.4. Requirements Management. The requirements management process is an iterative process which begins with identification of the user's needs, followed by the development of the necessary functional capability, and then the validation of that capability to ensure the user's requirements are met. Requirements should be managed and maintained with discipline so that changes are not executed without recognizing the impact to the project/program.

3.4.1. AEDC Project Narratives. Project narrative is an overview of the scope and objectives of a project which includes a summary of the activities to accomplish a project, any changes to existing or new work, management risks and/or description of productivity enhancements.

3.4.2. A validated need becomes a project and CARA line item(s) are established.

3.4.3. All 3600 DBA funded projects require a project narrative.

3.4.4. Project narratives shall be developed and maintained in a centralized location.

3.4.5. Project narratives for projects shall be created and available prior to CARA fact-finding.

3.4.6. Projects shall be linked to the Work Breakdown Structure to establish Total Obligation Authority requirements, contain fund codes and identify any project/contract/government furnished equipment resources requirements.

3.4.7. AEDC standardized project narrative format and the centralized location established for narratives are located on SharePoint at:
<https://cs4.eis.afmc.af.mil/sites/1347/Project%20Narratives/Forms/AllItems.aspx>

3.5. Data Management. Data management refers to the identification, acquisition, maintenance, and access to technical information, including computer software required to manage and support a system throughout its life cycle. Data Management considerations should include understanding and protecting Government intellectual property and data rights.

3.6. Project Planning. Project Planning is a multi-disciplined process used to establish and maintain plans that define project activities. Planning extends over the life cycle of the capability, beginning with development, through fielding and sustainment, and ending finally in disposal. All projects/programs amounting to or exceeding \$500,000 in total development costs are properly documented in a Program/Project Management Plan (PMP) or equivalent document. Typical content for a PMP is provided in Attachment 4.

3.7. Risk Management. Risk management is a continuous process that is accomplished throughout the life cycle of a system. Each undesirable event that might affect the success of the project/program (performance, schedule, and cost) should be identified and assessed as to the likelihood and consequence of occurrence. AEDC enterprise shall use the Risk Reporting Matrix standard format for evaluation and reporting of program risk assessment findings (Attachment 5).

3.8. Technical Management and Control. The Technical Management and Control (TM&C) process is utilized to provide an understanding of the project's technical progress so that appropriate corrective actions can be taken when the project's performance deviates significantly from the plan. Typical TM&C activities include formal technical reviews (e.g., Preliminary Design Review (PDR) and Critical Design Review (CDR), Program/Project Management Review (PMR)), and Program Protection Planning (PPP). The TA shall conduct periodic reviews, but no less than once per year, of their project/programs, or whenever a change to the project/program baseline is necessary.

3.9. Design. The design of Enterprise-wide T&E capabilities must leverage existing capabilities and infrastructure, to include utilization across multiple facilities/bases; consideration should be given to operation and sustainment, with special attention to personnel training and special skills.

4. Technical Baseline Management

4.1. The technical baseline for a development effort is comprised of the data necessary to define the modifications to an existing Configuration Item (CI) or the configuration of a new CI. The technical baseline is evolved through the development effort and is periodically examined at identified milestone reviews and audits. Each Division/Group shall ensure development efforts establish and maintain the technical baseline by:

4.1.1. Developing a standard methodology for managing technical baselines.

4.1.2. Ensuring traceability of requirements throughout the development and refinement of the technical baseline—from the need development, concept development, detailed design, operations and sustainment which includes disposal.

4.1.3. Maintaining integrity of technical baselines.

4.1.4. Conducting audits as required and delivering Operations & Sustainment (O&S) procedures, drawings, and other Configuration Management (CM) documentation as appropriate for incorporation into the O&S baseline.

5. General Guidance:

5.1. Systems Engineering Process Self-Assessment. The TA shall ensure that a self-assessment of the Organizational SE processes are conducted at least annually using the AF Systems Engineering Assessment Model (AF SEAM) as a guide. A combined assessment of a subset of the organization's projects/programs is acceptable, IAW AFMCI 63-1201. The assessment should be conducted on no less than three (3) projects/programs, to include at least one project/program amounting to at least \$500,000 in total development costs. The combined assessment shall not be any lower than the Division/Group level.

5.2. The CM process, as it applies to AEDC CIs that are in the Design, Execution, Operations and Sustainment phases. In addition to the requirements established within this document, the requirements of AEDC-STD-CM-1 shall be applied to all efforts within the scope of this document that create, repair, replace, improve or modernize an existing CI.

5.3. Tailoring. Tailoring is intended to ensure that the appropriate Life Cycle Systems Engineering approach is being implemented and that the decision authority is assigned at the proper level of management, with consideration of the projected cost, complexity, and technical risk associated with the program/project. The TA shall establish tailoring criteria to be applied in administering the organizational SE Instruction. (See Attachment 2 and Attachment 3).

5.4. Program Protection Planning. The TA shall ensure that CPI is identified and protected IAW AF and local CPI policy and procedures. Plans to protect CPI shall be documented in the PMP or equivalent document.

RODNEY F. TODARO, Colonel USAF
Commander

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

AFI 63-101/20-101, *Integrated Life Cycle Management*, 7 Mar 2013

AFMAN 33-363, *Management of Records*, 1 Mar 2008

AFMCI 63-1201, *Implementing Operational Safety Suitability and Effectiveness (OSS&E) and Life Cycle Systems Engineering (LCSE)*, 14 Oct 2009

AFTCI 63-100, *Life Cycle Systems Engineering of Test Capabilities and Infrastructure*, dated 19 Mar 2015

DoDI 5000.02, *Operation of the Defense Acquisition System*, 7 Jan 2015

AEDC-ENGR-STD-T-3, *Engineering Design and Drafting Practices*, 5 Dec 2012

AEDC-ENGR-STD-T-4, *Specification Practices*, 5 Dec 2012

Test System Sustainment System Engineering Handbook (TSS-SE-HNDBK), Integrated Systems Engineering (SE), June 2015

AEDC-STD-CM-1, *AEDC Standard Configuration Management*, Configuration Management Practices used at AEDC, 24 Sep 2014

AEDC Systems Engineering SharePoint Site:

<https://cs.eis.afmc.af.mil/sites/AEDCSEApplication/default.aspx>

Abbreviations and Acronyms

AEDC—Arnold Engineering Development Complex

AEDCI—Arnold Engineering Development Complex Instruction

AF—Air Force

AFI—Air Force Instruction

AFMC—Air Force Materiel Command

AFMCI—Air Force Materiel Command Instruction

AFTCI—Air Force Test Center Instruction

CARA—Capability Analysis and Risk Assessment

CC—Commander

CI—Configuration Item

CM—Configuration Management

CPI—Critical Program Information

DA—Decision Authority

DoD—Department of Defense

DODI—Department of Defense Instruction

LCSE— Lifecycle Systems Engineering

OPR—Office of Primary Responsibility

O&S—Operations and Sustainment (Sometimes stated as O&M – Operations and Maintenance)

OSS&E—Operational Safety, Suitability, and Effectiveness

PMP— Program/Project Management Plan

SE—Systems Engineering

TA—Technical Authority

TM&C—Technical Management and Control

Attachment 2

TECHNICAL TAILORING

Table A2.1. Technical Tailoring.

	Tailoring Classification	Capability Modification	
	GFRM	Continue to Improve	
	Project Type	Performance Improvement	New Function
Description of Project Type		Modifications to improve performance of an existing system/capability	Development, deployment of a new capability
		Pre-Tailored Category	
	Deliverable	TT1	TT2
Preplanning	Objectives and Con Ops Statement	Define scope; identify deficiency and capability performance improvements needed. Describe ConOps with detail needed to describe performance changes.	Define scope; identify capability new functionality will provide; list technical objectives and operational expectations in ConOps form.
Planning	Requirements Documentation	Identify existing system/item performance documentation and statements of system performance requirement changes. Design constraints and conditions.	Develop detailed ConOps for new capability including configurations, statements of system function/performance requirements with design constraints and conditions.
Preliminary Design	Engr Trade Study (AoA)	Documented analysis of options considered with pros and cons; evaluation and recommended solution	

	Preliminary Design Documentation	Engineering documentation, and cost/schedule estimates necessary to show recommended solution will satisfy expected results. Definition of expected changes in performance of major components/ interfaces	Engineering documentation, and cost/schedule estimates necessary to show recommended solution will satisfy expected results. Definition of performance expectations of major components and interfaces.
	Design Safety Analysis	Evaluation of potential safety risks with identification of design mitigations and remaining O&M risks	Identification of operational, and installation safety risks and design mitigations documented with the Hazard Analysis form
	Interface Control Documentation	Identify existing interface documentation and any required changes to interfaces	Identify all external interface points, connection types and through put requirements
Final Design	Detailed Design Documentation	Detailed design drawings for hardware fabrication and installation; updated O&M drawings (Detailed Design Document for IT for SW)	Detailed design drawings for hardware fabrication and installation; O&M drawings (Detailed Design Document for IT for SW)
	Procurement Documentation	Completed material requests and procurement specifications (with evaluation criteria and other supporting info if required)	
	Checkout, Commissioning (VV&A) Plan	Narrative description of planned activities and costs required to verify delivered performance meets the stated requirements, validates that delivered system satisfies the customer intent, and describes how the delivered system will be accepted	

	Checkout, Commissioning (VV&A) Procedures	Step by step instructions with sign-off describing the procedure demonstrating the required performance and accepting the system	
	Operations & Maintenance (O&M) Plan	Narrative description of recommended changes to operations and maintenance procedures, technical manuals and training requirements if required due to system upgrade	Narrative description of system operational practices and required maintenance and training activities
Delivery	Work Instructions	Updated and/or new to reflect performance improvements	New as needed to support O&M of new capability
	Ops Training Material	Training materials and sessions to train operations and maintenance personnel on any system modifications that impact operations and maintenance practices	Training materials and training sessions necessary to train operations and maintenance personnel on the new system or capability
	SSHA	Updates to operational hazard analyses that are impacted by modifications to existing systems or operating procedures	New hazard analyses to address operational safety issues associated with the new systems, components, or operating practices.
Checkout	Verification Results Documentation	Documented test results from performance tests conducted to validate and verify performance requirements of components and system are satisfied	
Acceptance	O&M Documentation	Documented verification of as-fielded O&M documentation	

A2.1. Technical Tailoring

A2.1.1. The objective of the Technical Tailoring (TT) is to assess the level of systems engineering that will be applied to the project. TT Levels are defined in Table A2.1 and have two different TTs such as TT1-TT2. Based on the project type and objectives, the tailoring level will be selected; and the project manager will use the TT level to develop a project plan that will contain the specific activities and deliverables for the project. Technical deliverables will be tailored for Pre-planning, Planning, Design- preliminary and final, Delivery, Verification/ Validation/Checkout, and Acceptance project phases. The detailed definition, criteria, and guideline for TT (systems engineering tailoring) at Table A2.1 and Project type definitions are provided below.

A2.2. Technical Tailoring Definitions:

A2.2.1. Performance Improvement - Projects performing modifications to existing systems or capabilities to improve performance of existing system/capability.

A2.2.2. New Function - Projects developing and deploying a new system or a new capability.

Attachment 3

PROJECT MANAGEMENT COMPLEXITY

Table A3.1. Project Management Complexity.

			Complexity Levels	
			PCL1	PCL2
WBS 1			Analysis, Technology Application, other	New* Test, Technology Development
WBS 2			Planning only Projects, Studies	Capability add/incr, I&M/ CTEIP/ MILCON projects
WBS 3				
WBS 4			Support to AE, GFE contractors	
WBS 5				Capability add/increase
WBS 6				
			* Test programs that require a new test capability, or extensive buildup, prep	
			Detail Definition Needs	
Initiating				
	Project Justification/ Business Case	Not applicable	Business case- Narrative description of project objectives (including top level cost and projected duration), Background and Expected Results and Benefits of the project. Could be incorporated as justification for facility/asset mods in test planning documentation	
	Project Scope Definition	Description of defined task	Project Scope Definition- Narrative description of total project scope is included in the business case, project plan (SOC, CPMP, Tech. Project Plan or other), project charter or other project documentation	
Planning				
	Project Structure	Developed based on task requested and desired level of tracking	Structure of project WBS follows standard 2nd level/phase numbering and naming convention for: <u>Test</u> (1-Planning, 2-Design, 3-Fabrication, 4-Installation & Checkout, 5- Testing, 6- Test Article Removal, 7- Analysis, 8- Reporting); or for <u>Improvement/Repairs</u> (1- Project Mgmt., 2- Planning, 3- Design, 4- Procurement, 5-Fabrication, 6- Installation, 7- Checkout, 8- Closeout, 9- Risk/Contingency)	
	Plan documentation		Project Plan- narrative description of project execution plans including scope of work, budget, risks, Systems Engineering plan, acquisition strategy and reporting/tracking strategy. WBS/Activity Dictionary- description of work to be performed in each project WBS, or activity level	
	Schedule Development		Time-phased, resource loaded schedule, with activity schedule relationships to allow evaluation of critical path, access/outage needs and time-phased resource demand Should be developed in project management software (MS Project) to aid in development and review.	
	Estimate basis, backup		Documented estimate basis with evaluation of estimate uncertainty, source of estimate	
	Plan review	Initial plan review by functional or line management for discrete taskings, Asset Owner (or designee) review for Minor Mods executed through PM/CM projects	Initial plan review conducted by cross-functional team	

Executing			
	SE Application		Documented plan for application of Systems Engineering practices as tailored and applied to the specific project
	Resource Assignment		Identified list of project team members by role and assignment commitments from functional organization
Controlling			
	Project status/tracking		Project schedule and ETC updates performed at least monthly to reflect and communicate current status. Earned Value Management tracking where appropriate. FY ETC at the activity/resource level will be reviewed/ updated quarterly for schedule and estimate level.
	Change Management		Formal project change documentation (PCA- Project Change Agreement, or CA- Change Agreement) prepared and approved to document the agreed to changes to the project measurement baseline (PMB) or Statement of Capability (SOC)
	Status Reviews		Project reviews comparing status against initial or latest approved plan conducted monthly with the designated project review authority
Closing			
	End of Project evaluation		Customer Satisfaction Survey will be conducted after project completion and project cost and lessons learned evaluation will be conducted
	Archive project records		Project initial and final budget, final cost; SE documentation identified in SE approach; all asset configuration documentation

A3.1. Project Management Complexity

A3.1.1. The Project Management Tailoring is to select and streamline AEDC's project management practices based on the project complexity level (PCL). As shown in Table A3.1, there are two complexity levels (PLC1-PLC2). The project management practices include project justification and business case development, scope definition, scheduling, cost estimating, etc. Utilizing the PCL determined from Table A3.1, the project management processes will be tailored by the project manager to develop the project management plan applicable to the complexity level. The plan developed by the project manager will be reviewed by asset owners, project team, or a cross functional team depending on the PCL level. Projects from a functional area may align with the different PCLs based on the project characteristics as shown in Table A3.1. Project management practices will be tailored for the Initiation, Planning, Executing, Controlling and Closing process groups. The detailed definition, criteria, and guideline for PCL tailoring are provided below.

A3.2. Project Management Complexity Definitions:

A3.2.1. Analysis, Tech. Appl., Other - Specific tasks for analysis, technology application and other small efforts that do not require the level of definition and integration needed on larger projects.

A3.2.2. Planning Projects, Studies - Projects and tasks to develop planning-only information or studies.

A3.2.3. Support to AE, GFE Contractors - Projects providing support for AEDC integration of efforts contracted by the government with outside architect-engineering firms or contractors.

A3.2.4. New Test, Technology Development - Test and technology development projects conducting test and development activities that have not been previously performed at AEDC and require increased planning and coordination to mitigate performance risk.

A3.2.5. Cap. Add/Incr I&M/CTEIP/etc. - Projects to add a new capability or increase performance of an existing AEDC test capability including projects funded by dedicated authorizations with increased process and support requirements.

Attachment 4**PROJECT PROGRAM MANAGEMENT PLAN (PMP) DESCRIPTION****Figure A4.1. Project/Program Management Plan Description.**

The following items are the major parts of the PMP:

1. Project Description provides a short narrative describing the overall project and an illustration portraying the concept of operations for the required T&E capability, the mission need, and key technical requirements and performance characteristics, e.g., Key Performance parameters (KPPs) for the T&E capability.
2. Technical Approach addresses the design and development strategy and plans, the system engineering approach; technology maturity levels; technical, cost, and schedule risk identification; assessment and plans to mitigate and monitor; and configuration management.
3. Critical and Key Issues describe the limitations, constraints, and external factors that can impact development and fielding.
4. Project Status describes current project status and accomplishments in terms of technical progress, cost, and schedule.
5. Management Approach describes the project organization and technical management approach.
6. Acquisition Strategy includes who will be responsible for system integration; the contracts by type, contractor, cost, period of performance and rationale for selection; and the approach to contract management, oversight, and reporting.
7. Cost Control identifies the mechanisms, in place, to manage and control costs.
8. Activation and Test describes the plan to test, demonstrate, and validate that the capability meets technical and performance requirements.
9. Transition provides the plan for transitioning the capability from any life cycle phase to another including development, acquisition, operations/maintenance, sustainment, and decommission/disposal.
10. Funding identifies the approved funding and other required sources of funding. This part of the PMP contains a spend plan that shows how the funds are allocated across all funded fiscal years, consistent with the milestone schedule for each of the major components and subcomponents of the project. It also identifies shared funding required by the project, as well as obligation and expenditure plans for the current and following fiscal year funding.
11. Schedule provides the significant milestones for development of the major subcomponents for each of the major components undertaken by the lead and participating Services/DoD agencies. Significant technical milestones may include design, development, prototype fabrication, testing, validation/verification, activation, and integration of the test capability into the location where support of the system will be provided. Significant programmatic milestones include conduct of such things as Systems Requirements Reviews, Preliminary Design Reviews, Critical Design Reviews, major contract awards, major decision reviews, and the planned transition date to the user organization for long-term sustainment. For projects without significant major subcomponents, the milestone schedule should be at the major component level. A major subcomponent or component is defined as a significant hardware, software or capability deliverable.

Attachment 5
RISK ANALYSIS

Figure A5.1. Levels of Likelihood Criteria.

Likelihood	Level	Likelihood	Probability of Occurrence
	1	Not Likely	~10%
	2	Low Likelihood	~30%
	3	Likely	~50%
	4	Highly Likely	~70%
	5	Near Certainty	~90%

Figure A5.2. Risk Reporting Matrix.

Likelihood	5	Green	Yellow	Red	Red	Red
	4	Green	Yellow	Yellow	Red	Red
	3	Green	Green	Yellow	Yellow	Red
	2	Green	Green	Green	Yellow	Yellow
	1	Green	Green	Green	Green	Yellow
		1	2	3	4	5
		Consequence				

Figure A5.3. Levels and Types of Consequence Criteria.

Consequence	Level	Technical Performance	Schedule	Cost
	1	Minimal or no consequence to technical performance	Minimal or no impact	Minimal or no impact
	2	Minor reduction in technical performance or supportability, can be tolerated with little or no impact on program	Able to meet key dates. Slip < * month(s)	Budget increase or unit production cost increases. < ** (1% of Budget)
	3	Moderate reduction in technical performance or supportability with limited impact on program objectives	Minor schedule slip. Able to meet key milestones with no schedule float. Slip < * month(s) Sub-system slip > * month(s) plus available float.	Budget increase or unit production cost increase < ** (5% of Budget)
	4	Significant degradation in technical performance or major shortfall in supportability; may jeopardize program success	Program critical path affected. Slip < * months	Budget increase or unit production cost increase < ** (10% of Budget)
	5	Severe degradation in technical performance; Cannot meet KPP or key technical/supportability threshold; will jeopardize program success	Cannot meet key program milestones. Slip > * months	Exceeds APB threshold > ** (10% of Budget)

Note: */** - Consequence criteria should be set separately for each project.